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MODULAR DECKING PLANKS**FIELD OF THE INVENTION**

The present invention relates generally to construction materials and more particularly to materials used for indoor and outdoor decking. In even greater particularity the present invention relates to the use of prefabricated decking planks and in still greater particularity to decking planks made from extruded materials. The invention is applicable, for example, in the construction of boat docks, piers, decks, patios, walkways, pontoon boat floors, and the like.

BACKGROUND OF THE INVENTION

Extruded polyvinyl building and construction materials are increasing in popularity due to their light weight, which greatly simplifies shipping, handling and installation, and also due to their durability in adverse weather conditions, which greatly increases their service life. Polyvinyl materials do not need to be periodically painted or preserved, which greatly lowers maintenance costs, and modern ultraviolet inhibitors prevent UV breakdown of polyvinyl materials for many years. Extruded hollow members offer utility similar to wood or molded members but are cheaper and easier to mass-produce than conventional molded members; and, extruded members can be easily formed with internal reinforcing ribs or webs to add strength and stiffness. As such, the hollow extruded members offer a long lasting, low maintenance, and cost effective alternative for traditional wood floor members, such as on decks, floors, porches, marine docks and similar applications.

Because nails or screws driven directly through the plastic are likely to cause stress risers and/or cracking, the hollow extruded members require special mounting brackets or cleats in order to secure the members to the supporting frame or structure.

On certain polyvinyl decking systems, the decking members have a series of openings in the bottom surface, and the members are snapped onto mounting brackets or clips that have been attached to the top of the joist or support structure. Another prior art approach utilizes U-shaped mounting clips that are attached to the top of the joist. The decking members are secured to the upwardly extending legs of the mounting clip. Such prior art systems have a number of drawbacks, including relatively high material costs and relatively long installation time, and on many such systems it is difficult to properly align the holes in the deck members with the preinstalled clips. Moreover, if the pre-installed clips are not mounted properly the decking members may move or "wander" slightly, giving the deck an unsightly and unprofessional appearance.

According to one prior art plastic decking plank, separate cap and base elements are snapped together to form a single plank. The base element is first mounted directly to the sub-floor with fasteners such as screws or nails. Mating components of the cap and base elements are then manually aligned, and a rubber hammer or other tool is used to snap-attach the pieces together. Unlike the invention, such two-piece designs generally require substantial time and effort to assemble.

Another drawback with prior art methods is that polyvinyl, like all construction materials, flexes slightly under load. On conventional wood decks such flexing is almost completely unnoticeable. However, on plastic or polyvinyl decks such flexing often creates an unnerving and unpleasant squeak or creaking sound. For many reasons, most consumers consider such squeaking and creaking a

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very undesirable attribute. Accordingly, there exists a need for an improved polyvinyl decking system that is cost effective to produce and install, and that does not have any of the unfavorable characteristics that plague prior art polyvinyl decking systems. Further, known polyvinyl decking has a tendency to deform along reinforcement lines, thus creating unsightly rows along the plank.

The present invention utilizes extruded tubular decking members that have internal reinforcing webs to maximize flexural strength and stiffness. The present invention also utilizes a unique interlocking feature between adjacent decking members and maintains the proper spacing between deck members and also secures the deck members to each other and to the supporting joists.

SUMMARY OF THE INVENTION

Accordingly, it is an object of this invention to provide an improved polyvinyl or plastic deck system.

It is another object of this invention to provide a polyvinyl or plastic deck that can be installed faster and more efficiently than prior art decks.

A further object of this invention is to provide a polyvinyl or plastic deck that eliminates binding or buckling caused by unequal thermal expansion.

A still further object of this invention is to provide a polyvinyl or plastic deck that does not squeak.

It is an object of the invention to provide a modular, one-piece plastic construction element which may be readily assembled together with a number of like elements to form a decking or other structure.

It is another object of the invention to provide a modular decking plank that is relatively inexpensive to manufacture.

It is another object of the invention to provide a decking plank which includes hidden fasteners located below the top surface of the decking structure for mounting the plank to a supporting subassembly.

These and other objects of the invention will become apparent to those skilled in the art upon a reading of the following description, with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The system embodying the present invention is depicted in the accompanying drawings that form a portion of the invention and wherein:

FIG. 1 is a perspective view of a deck plank made in accordance with the present invention;

FIG. 2 is a partial section view of FIG. 1;

FIG. 3 is a sectional view of a plurality of planks being installed; and

FIG. 4 is a sectional view of the installed planks.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings for a clearer understanding of the invention it may be seen in FIG. 1, that the invention contemplates an elongated extruded construction element 10 having a top wall portion 11, a bottom wall portion 12, a first side wall 13 connecting the top and bottom, a second side wall 14 connecting the top and bottom. The element 10 is preferentially extruded from PVC or some other suitable plastic; however, aluminum extrusion of the plank is also possible.

Top wall portion 11 extends laterally past first side wall 13 and terminates in a downwardly extending flange 16 which